

**Notice of Allowability**

Application No.

09/880,757

Examiner

A. Dexter Tugbang

Applicant(s)

WASA ET AL.

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to After Final Amendment filed on August 4, 2006.
2. ☒ The allowed claim(s) is/are 73-75, 77-85 (renumbered as 1-12, respectively).
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment                               |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|   | 9. <input type="checkbox"/> Other _____.   |

### REASONS FOR ALLOWANCE

1. The following is an examiner's statement of reasons for allowance.

The prior art does not teach all of the limitations of the claimed invention including forming by a vapor method on a supporting substrate a layer, or first layer, having a perovskite structure, a temperature at a time of *deposition* of the layer, or first layer, being at least 500 degrees C during the vapor method (as required in each of Claims 73, 83 and 84).

The applicant(s) remarks filed on August 4, 2006 (note pages 6-9) are fully incorporated by reference herein. In addition to this, the examiner would like to add the following remarks.

The above feature was relied upon in Moynihan et al and Roeder et al. Moynihan does teach forming a perovskite structure with a first layer, but Moynihan does not teach that the first layer is heated to a temperature of 500 degrees C at the very same time of deposition of the first layer, which is a deposition within the vapor method. Moynihan *subsequently* heats the first layer at a different time of formation, i.e. annealing, rather than at a time of deposition of the first layer.

While Roeder teaches depositing a first layer of a perovskite structure to a temperature of 500 degrees C (col. 7, lines 28-35), Roeder accomplishes this elevated temperature through oxidization. Furthermore, Roeder does not teach subsequently cooling from the deposition temperature at least to 450 degrees C at a cooling speed of at least 30 degrees C/minute. To combine the teachings of Roeder with Moynihan would destroy the invention of Moynihan, because to do this would mean that the first layer of the perovskite structure of Moynihan would be oxidized producing truly unexpected results, since the intent of Moynihan is not to oxidize

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any layers. Therefore, it would not be obvious to one of ordinary skill in the art of manufacturing a piezoelectric element structure to combine Roeder with Moynihan.

Accordingly, Claims 73-75 and 77-85 are allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Dexter Tugbang whose telephone number is 571-272-4570. The examiner can normally be reached on Monday - Friday 8:30 am - 5:00 pm.

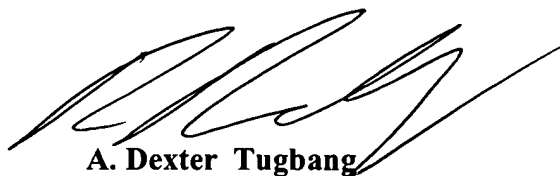
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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A handwritten signature in black ink, consisting of stylized, overlapping loops and strokes, positioned above the printed name.

**A. Dexter Tugbang**

**Primary Examiner**

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August 7, 2006